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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/056,457	01/25/2002	Timothy Lee Kelly	MEW1911/064	4128

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EXAMINER

LEURIG, SHARLENE L

ART UNIT

PAPER NUMBER

2879

DATE MAILED: 02/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/056,457	KELLY, TIMOTHY LEE	
	Examiner	Art Unit	
	Sharlene Leurig	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 November 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All   b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

### DETAILED ACTION

1. The amendment filed on November 10, 2003 has been entered and acknowledged by the examiner. Claims 1 and 12 have been amended and claims 2 and 13 have been cancelled.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 4, 5, 6 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thornton, Jr. et al. (4,360,758) (of record) in view of Wada et al. (5,256,940) (of record).

Regarding claim 1, Thornton, Jr. discloses a metal halide lamp having superior red rendering characteristics, comprising an arc tube formed of a material transmissive to visible radiation (column 3, lines 54-55), a fill of metal halides comprising  $\text{CaI}_2$ ,  $\text{GaI}_3$ , and  $\text{TlI}$  (Table III, arc tube number 18), and discharge electrodes disposed at opposite ends of the arc tube (column 3, lines 56-57). Thornton, Jr. further discloses a fill comprising mercury and argon (column 4, lines 50-55) and  $\text{CaI}_2$  in a molar quantity of 74%, which falls within the claimed range of 10 to 75% of the total molar quantity of the total halides,  $\text{SnI}_2$  in a molar quantity of 19.4%, which falls within the claimed range of 10 to 75% of the total molar quantity of the total halides, and  $\text{TlI}$  in a molar quantity of

Art Unit: 2879

6.6%, which falls within the claimed range of 5 to 50% of the total molar quantity of the total halides. The numbers calculated above are for only one example disclosed by Thornton, Jr. Arc tube 5 was chosen as an example because of its high lumens per watt, given in Table I. The wider range of fill constituents is given in column 3, lines 6-12. Please see the enclosed sheet of calculations.

Thornton, Jr. lacks disclosure of a fill containing an aluminum halide.

Wada teaches a metal halide lamp having an aluminum chloride fill component, and further teaches that any of the following halides can be used instead of aluminum chloride: tin iodide, aluminum iodide, or aluminum bromide (column 4, lines 23-26).

Therefore Wada teaches that aluminum iodide and aluminum bromide are interchangeable with tin iodide.

Therefore regarding claim 1, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Thornton, Jr.'s lamp having tin iodide with aluminum bromide or aluminum iodide to obtain the desired lighting effect, since Wada teaches that those halides are interchangeable. The range disclosed by Thornton, Jr. (column 3, lines 6-12) is wide enough that despite the difference in molar weight between tin iodide and either aluminum bromide or aluminum iodide, one of the disclosed arc tube fill ratios, when tin iodide is substituted with aluminum iodide or bromide, would fit within the claimed range.

Regarding claim 4, Thornton, Jr. discloses an arc tube made of quartz (column 3, lines 54-55).

Art Unit: 2879

Regarding claim 5, Thornton, Jr. discloses an arc tube surrounded by a glass envelope (column 3, lines 62-63).

Regarding claim 6, Thornton, Jr. discloses an envelope containing a fill gas of nitrogen at a pressure of 300 torr, which falls within the claimed range of 250 to 600 torr (column 3, line 65).

Regarding claim 12, Thornton, Jr. discloses a lamp with a fill that can be sodium-free. Although Thornton, Jr. discloses sodium as a possible halide fill (column 1, lines 22-26), many of the disclosed fills contain no sodium (Table III).

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Thornton, Jr. (4,360,758) (of record) in view of Wada et al. (5,256,940) (of record), as applied to claims 1, 4-6 and 12 above, and further in view of Kramer et al. (4,801,846) (of record).

Thornton, Jr. discloses a metal halide lamp with good red rendering characteristics having a fill containing tin iodide as one of its halides.

Thornton, Jr. lacks disclosure of an aluminum halide.

Wada teaches that aluminum halides are interchangeable with tin iodide.

Both Thornton, Jr. and Wada lack a fill containing rare earth halides.

Kramer teaches a fill comprising mercury, a calcium halide, an inert gas and rare earth halides to yield a lamp with good red emission. The rare earth components taught include Dy, Ho and Tm (column 4, line 19).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Thornton Jr.'s lamp to have an aluminum halide rather than tin

Art Unit: 2879

iodide in order to obtain the desired lighting effect, since Wada has taught them to be interchangeable, and to further modify it to have rare earth halides such as those of Dy, Ho and Tm, as taught by Kramer, to further improve the lamp's lighting characteristics.

5. Claims 7, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thornton, Jr. et al. (4,360,758) (of record) in view of Wada et al. (5,256,940) (of record) as applied to claims 1, 4-6 and 12 above, and further in view of Tsuda et al. (2002/0063503 A1) (of record).

Thornton, Jr. discloses a metal halide lamp with good red rendering characteristics having a fill containing tin iodide as one of its halides.

Thornton, Jr. lacks disclosure of an aluminum halide.

Wada teaches that aluminum halides are interchangeable with tin iodide.

Both Thornton, Jr. and Wada lack a protective shroud.

Regarding claim 7, Tsuda teaches a shroud surrounding the arc tube to prevent glass shards from shattering the lamp in case of explosion (page 3, paragraph 0041) and further to block infrared light and yellow light from being emitted (page 4, paragraph 0059).

Regarding claim 9, Tsuda teaches a shroud that is cylindrical in shape (Figure 1, element 30).

Regarding claim 10, Tsuda teaches a shroud coated with a reflective film to filter out yellow light (page 4, paragraph 0060) to produce a more uniform light. The claimed

Art Unit: 2879

range of 585 nm with a half peak bandwidth of between about 5 and 40nm is the same range as yellow light.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Thornton Jr.'s lamp to have an aluminum halide rather than tin iodide to obtain the desired lighting effect, since Wada has taught them to be interchangeable, and to further modify it to have a shroud to protect the viewer in case of explosion of the arc tube, as taught by Tsuda, and to further modify it with yellow filtering capabilities to produce more uniform light.

6. Claims 8 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thornton, Jr. et al. (4,360,758) (of record) in view of Wada et al. (5,256,940) (of record) as applied to claims 1, 4-6 and 12 above, and further in view of Tsuda et al. (2002/0063503 A1) (of record), as applied to claims 7, 9 and 10 above, and further in view of Hirano et al. (4,315,186) (of record).

Thornton, Jr. discloses a metal halide lamp with good red rendering characteristics having a fill containing tin iodide as one of its halides.

Thornton, Jr. lacks disclosure of an aluminum halide.

Wada teaches that aluminum halides are interchangeable with tin iodide.

Both Thornton, Jr. and Wada lack a protective shroud.

Tsuda teaches a shroud made of glass but lacks explicit disclosure of a borosilicate glass.

Tsuda further lacks a shroud made of glass containing neodymium.

Art Unit: 2879

Hirano teaches a lamp with a reflective surface made of borosilicate glass (column 2, line 32) doped with neodymium, which is chosen for its yellow-filtering capacity (light around 580 nm) (column 2, lines 46-48).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Thornton Jr.'s lamp to have an aluminum halide rather than tin iodide to obtain the desired lighting effect, since Wada has taught them to be interchangeable, to further modify it to have a shroud to protect the viewer in case of explosion of the arc tube, as taught by Tsuda, and to further modify it with a shroud made of borosilicate glass doped with neodymium, as taught by Hirano, to thereby produce a lamp with a yellow-filtering shroud whose filtering is integral to the glass itself and not to filtering films that may degrade over time.

### ***Response to Arguments***

7. Applicant's arguments filed on November 10, 2003 have been fully considered but they are not persuasive. The applicant has argued that the amended version of claim 1 is allowable over the prior art of record, as the combination of the prior art of record does not teach all the limitations of amended claim 1. The examiner disagrees and maintains the rejection of claim 1, modified to reflect the inclusion of the limitations of claim 2 in independent claim 1. Claim 1 is now rejected under Thornton, Jr. et al. (4,360,758) (of record) in view of Wada et al. (5,256,940) (of record), the combination of which teaches each and every limitation of claim 1.



Art Unit: 2879

***Conclusion***

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sharlene Leurig whose telephone number is (571) 272-2455. The examiner can normally be reached on Monday through Friday, 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Art Unit: 2879

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

Sharlene Leurig



**VIP PATEL  
PRIMARY EXAMINER**